

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Appl. No. : 10/536,637
Applicant(s): Josephus A.H.M. Kahlman, et al.
Filed: May 27, 2005
TC/A.U.: 1600/1641
Examiner: Unsu Jung
Atty. Docket: NL 021265
Confirmation No.: 2471
Title: DEVICE COMPRISING SENSOR ELEMENT
FOR BIOMOLECULES

APPEAL BRIEF

Honorable Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In connection with the Notice of Appeal dated **November 25, 2007**, please amend the above-referenced application as follows and reconsider the application in light of the following remarks.

REAL PARTY IN INTEREST

According to an assignment records available on USPTO PAIR, Koninklijke Philips owns all of the rights in the above-identified U.S. patent application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences related to this application or to any

related application, nor will the disposition of this case affect, or be affected by, any other application directly or indirectly.

STATUS OF CLAIMS

Claims 1-8 are pending and all stand rejected. Claims 9-13 are cancelled. Accordingly, the claims on Appeal are claims 1-8. Claims 1-8 are reproduced in the Appendix.

STATUS OF AMENDMENTS

There are no pending amendments with respect to this application.

SUMMARY OF CLAIMED SUBJECT MATTER¹

A device (e.g., 1 shown in Fig. 1) having biomolecular binding sites (e.g., 5A, shown in Fig. 10) for a biomolecule (e.g., 6A, shown in Fig. 10) comprises a resonance circuit (e.g., 31, 32 and 33 shown in Fig. 3). The resonance circuit comprises a resonance frequency (f) determining sensor element (e.g., 5 shown in Fig. 10) or is electrically coupled to a resonance frequency determining sensor element. The device also comprises a remote power transmission element (e.g., 101 shown in Fig. 10), which receives power and provides electrical power to the device. Binding at the biomolecular binding sites affects a physical property of the resonance frequency determining sensor element and thereby the resonance frequency. The device also comprises circuit, which is separate from the remote power transmission element, for RF communication of an RF signal (e.g., RF at f2 shown in Fig. 10) in dependence of the resonance frequency of the resonance circuit.

¹ In the description to follow, citations to various reference numerals, figures, and corresponding text in the specification are provided solely to comply with Patent Office rules. It should be understood that these reference numerals, figures, and text are exemplary in nature, and not in any way limiting of the true scope of the claims. It would therefore be improper to import anything into any of the claims simply on the basis of **exemplary** language that is provided here only under the obligation to satisfy Patent Office rules for maintaining an Appeal.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on Appeal are:

(1) the rejections of claims 1,3,4,5 and 8 under 35 U.S.C. § 103 over *Oyama, et al.* (US Patent 5,552,274) in view of *Ruile, et al.* (US Patent 6,084,503) and *Ishikawa, et al.* (WO 00/66781); (2) the rejection of claim 2 under 35 U.S.C. § 103 over *Oyama, et al.* in view of *Ruile, et al.*, *Ishikawa, et al.* and *Hirt* (US Patent 5,926,301); and (3) the rejection of claims 6 and 7 under 35 U.S.C. § 103(a) over *Oyama, et al.* in view of *Ruile, et al.*, *Ishikawa, et al.* and *Hartman, et al.* (US Patent 6,592,820).

ARGUMENTS

(1) Claims 1,3,4,5 and 8 are Patentable Over the Applied Art

Claim 1

*A device having biomolecular binding sites for a biomolecule, comprising:
a resonance circuit, said resonance circuit comprising a resonance frequency (f)
determining sensor element or being electrically coupled to a resonance frequency
determining sensor element, a remote power transmission element, which receives power
and provides electrical power to the device, wherein binding at the biomolecular binding
sites affects a physical property of the resonance frequency determining sensor element
and thereby the resonance frequency, and a circuit, which is separate from the remote
power transmission element, for RF communication of an RF signal in dependence of the
resonance frequency of the resonance circuit.*

The final Office Action withdraws the rejection of claim 1 set forth in the non-final rejection, which relied upon *Oyama, et al.* and *Ruile, et al.* The present Office Action relies upon these references and *Ishikawa, et al.* Applicants respectfully submit that the Examiner has merely cobbled a rejection by extracting elements of claim 1 from references in a manner that requires the use of claim 1 as a template for its reconstruction.

In *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727; 82 U.S.P.Q.2D 1385 (2007), the Court stated “A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966) (warning against a “temptation to read into the prior art the teachings of the invention in issue” and instructing courts to “guard against slipping into the use of hindsight” (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (CA6 1964))).” Moreover, if there is no suggestion to combine the teachings of the applied art, other than the use of Applicants’ invention as a template for its own reconstruction, a rejection for obviousness is improper. *Ex parte Crawford, et al.* Appeal 20062429, May 30, 2007. In furtherance to the need for the suggestion to combine the teachings of the applied art, it is established that rejections on obviousness grounds cannot be sustained by mere conclusory statements: instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l v. Teleflex*, 127 S. Ct. at 1741.

Ruile, et al. Non-Analogous Art

Applicants submit that the reference to *Ruile, et al.* is not pertinent art and thus cannot serve to establish a rejection under 35 U.S.C. § 103(a). The determination that a reference is from a non-analogous art is two-fold. First, the reference must be within the field of the inventor's endeavor. If it is not, the reference must be reasonably pertinent to the particular problem with which the inventor was involved. *In re Dillon* 16 USPQ2d 1897 (CAFC 1990). *Ruile, et al.* relates to a radio-interrogated SAW sensor. The sensors of the reference are applied to toll systems on highways and in road tunnels to measure road loading. (See, for example column 1, line 51-column 2, and line 16 of the reference.) By contrast, the claims under examination relate to a device having biomolecular binding sites for a biomolecule. These devices are used, for instance, in detection of biomolecules in genetic testing, the presence of lipids, proteins, and the like. These

technologies are greatly disparate, and it is not reasonable to assert that one skilled in biosensors would consider road sensors to be within his/her field of endeavour.

As such, Applicants respectfully submit that the applied art is non-analogous art and thus cannot serve to establish a rejection under 35 U.S.C. § 103(a).

Basis of Combination is Improper

In furtherance of their position, Applicants respectfully submit that while the Examiner has proffered reasons why the combination of *Ruile, et al.* would have been obvious and would provide advantages, there is no extrinsic evidence provided to support these assertions. For example, the Examiner states: “Ruile et al. can be used in devices comprising different types of sensor elements including a SAW resonator, which is used in biosensor applications to identify or quantitatively measure chemical/biological substances.” A review of *Ruile, et al.* fails to reveal any disclosure of SAW resonators or the application to biosensors.

Moreover, no extrinsic evidence is provided in support of the proffered basis to combine the applied art. As is known, a claim rejection must be based on objective evidence of record, and cannot be supported merely on subjective belief and unknown authority. See, e.g., M.P.E.P. § 2144.03; *In re Lee*, 277 F.3d at 1344-45, 61 USPQ2d at 1434-35 (Fed. Cir. 2002); *In re Zerko*, 258 F.3d at 1386, 59 USPQ2d at 1697.

No such concrete evidence has been provided by the Examiner here, nor did the Examiner submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) if this proposed motive were based on facts within his personal knowledge (see M.P.E.P. § 2144.03). Applicants respectfully request that such an affidavit be provided if a rejection continues to be made without a citation of any objective evidence.

For at least the reasons set forth above, Applicants respectfully while the Examiner proffers reasoning for supplanting the teachings of *Ruile, et al.* in *Oyama, et al.*, because the applied art provides no basis for this, there can be no rational underpinning to support the legal conclusion of obviousness. As such, the rejection is

improper and should be withdrawn.

(2) Claim 2 is Patentable over Oyama, et al., Ruile, et al., Ishikawa, et al. and Hirt

Claim 2 depends from claim 1 and is patentable for at least the same reasons as claim 1 and in view of its additionally recited subject matter.

(3) Claims 6 and 7 are Patentable Oyama, et al., Ruile, et al., Ishikawa, et al. and Hartman, et al.

Claims 6 and 7 depend from claim 1 and are patentable for at least the same reasons as claim 1 and in view of its additionally recited subject matter.

CONCLUSION

For all of the foregoing reasons, Applicants submit that claims 1-8 are all patentable over the cited prior art. Therefore, Applicants respectfully request that the rejections of claims 1-8 be withdrawn, the claims be allowed, and the application be passed to issue.

Respectfully submitted,

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Appendix

Claims on Appeal

1. A device having biomolecular binding sites for a biomolecule, comprising:
a resonance circuit, said resonance circuit comprising a resonance frequency (f) determining sensor element or being electrically coupled to a resonance frequency determining sensor element, a remote power transmission element, which receives power and provides electrical power to the device, wherein binding at the biomolecular binding sites affects a physical property of the resonance frequency determining sensor element and thereby the resonance frequency, and a circuit, which is separate from the remote power transmission element, for RF communication of an RF signal in dependence of the resonance frequency of the resonance circuit.
2. A device as claimed in claim 1, wherein at the remote power transmission element comprises a photodiode.
3. A device as claimed in claim 1, wherein the remote power transmission element comprises a coil for receiving RF power whereby the remote power transmission element is arranged for receiving an RF frequency different from the resonance frequency.
4. A device as claimed in claim 1, wherein the sensor element forms a part of the resonance frequency circuit.
5. A device as claimed in claim 4, wherein the sensor element forms part of a voltage or current supplying circuit, coupled to the resonance circuit, wherein the voltage (V) or current (I) of the supplying circuit is dependent on the physical property of the sensor element, and the resonance frequency (f) of the resonance circuit is dependent on said voltage (V) or current (I).
6. A device as claimed in claim 1, wherein the sensor element is a magnetoresistive element.

7. A device as claimed in claim 3, wherein the sensor elements are resistive elements provided in a bridge configuration.
8. A device as claimed in claim 2, the sensor elements are located on the surface of an on-chip Surface Acoustic Wave/Bulk Acoustic Wave (SAW/BAW) resonator which is part of the oscillator circuit.

Appendix

Evidence (None)

Appendix

Related Proceedings (None)